

Letters to the Editor

Hand Antisepsis: Evaluation of a Sprayer System for Alcohol Distribution

To the Editor:

Hand hygiene is still the single most important infection control measure for preventing nosocomial infections, and we welcome any new method or tool to increase compliance with it.

In the March issue of *Infection Control and Hospital Epidemiology*, Barrau et al.¹ reported the evaluation of an alcohol sprayer system for hand antisepsis. Some readers may have environmental and safety concerns regarding the type of gas used to vaporize the alcohol and local laws regarding aerosolized flammable fluids. Aside from these concerns and that the interpretation of the results presented in Table 2 would require knowledge of patient-days per stage of care necessity as well as information on how the investigators were able to assign alcohol use to one of the categories, we believe that the study methodology deserves further discussion.

Barrau et al.¹ compared a wall-mounted, hand-activated sprayer system with "bottles on a table," whereas dispensers are usually activated with clean elbows to avoid their contamination.² Furthermore, the study protocol¹ asked for hand cleansing before and after every visit to a patient's room, regardless of whether healthcare workers (HCWs) had had contact with the patient or the room environment or had previously washed their hands with soap and water. Compliance of HCWs with spray use was scored, disregarding hand washes or disinfection in the patient rooms. On the whole, the study setting seemed contradictory to state-of-the-art recommendations for the use of fast-acting alcohol-based hand rubs at the bedside,^{2,3} which can bypass the time constraints associated with a high workload and thereby lead to better

compliance.^{4,6} New methods for increasing compliance with hand hygiene need to provide HCWs with not only the most effective products and application systems, but also rational indications for their use.

The results of this study¹ suggest a possible benefit of the sprayer system. Conclusions are entirely based on the estimated differences in the number of hand rinses per day derived from laboratory experimentation, which may not reflect actual practices on the wards. Were the amounts of alcohol used in the laboratory similar to those used on the wards? How is it possible that the actual amount of hand rub used (1.35 mL) was less than half of what was recommended? How much of the alcohol sprayed would end up on the hands? Furthermore, sprays may not adequately spread on the hands and thus may be less effective than a fluid, as evidenced by the results of a study on surface disinfection.⁷ Would the significantly greater amount of alcohol poured from the individual bottle (1.35 mL per rinse) as compared with that obtained from the sprayer (0.79 mL per rinse) be associated with greater efficacy for bacterial hand antisepsis? The small amount obtained from a sprayer is likely to be insufficient to kill most bacteria on the hands.⁸ Furthermore, before an alcohol-based spray is recommended for hand antisepsis, it should be considered that state-of-the-art hand disinfectants always include an emollient to care for the skin of HCWs; such an emollient had not been added.

We are surprised by the high rate of compliance by physicians (95% versus 28% for nurses) on entering a patient's room, which contrasts with that of previous studies. Observation bias could be an explanation, but, most importantly, the compliance level at the bedsides of patients was not accounted for and, as stated above, the opportunities for hand antisepsis were much different from those that have appeared in the literature or recommendations of guidelines.

REFERENCES

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The authors reply.

We are pleased to reply to the comments of Drs. Voss, Widmer, and Pittet, who promote the use of alcohol in hand antisepsis.^{1,2} Alcohol in a sprayer system is propelled with nitrogen, a gas that is known to be safe for the environment and not flammable. For physicians who practice evidence-based medicine, guidelines should be given with an appropriate grade of recommendation and level of evidence.